

IN THE CLAIMS

1. (Currently Amended) A DC voltage generator system for supplying at least one voltage level to a plurality of subsystems on an integrated circuit having a system on chip (SOC) design, each of the subsystems having a plurality of units, at least two of the units located in at least one of the subsystems being different from each other, the DC voltage generator system comprising:

a plurality of local DC voltage generators distributed throughout the SOC chip integrated circuit, each local DC voltage generator independently supplying voltage to at least one unit of the plurality of subsystems, each local DC voltage generator including:

at least one regulator system incorporated in the local DC voltage generator, a power control unit and a clock control unit, wherein each regulator system receives a power control signal from said power control unit and a clock control signal from said clock control unit and outputs a pump control signal from the local DC voltage generator, the pump control signal being based on a reference voltage supplied to the at least one regulator system, the pump control signal being enabled and disabled in response to at least the clock control signal; and

a pump system receiving the ~~one~~ pump control signal and outputting at least one voltage level in accordance with the ~~one~~ pump control signal.

2. (Previously Presented) The DC voltage generator system according to Claim 1, wherein each local DC voltage generator is located proximate to a unit of the plurality of units.

3. (Previously Presented) The DC voltage generator system according to Claim 1,

wherein each local DC voltage generator supplies the voltage level to one unit of the plurality of units.

4. (Previously Presented) The DC voltage generator system according to Claim 1, wherein a voltage level of the voltage supplied is selectable.

5. (Previously Presented) The DC voltage generator system according to Claim 1, wherein each local DC voltage generator is independently controlled by a respective control signal.

6. (Previously Presented) The DC voltage generator system according to Claim 5, wherein each respective control signal is generated by a power control unit in accordance with a power level mode at which the integrated circuit is operating.

7. (Previously Presented) The DC voltage generator system according to Claim 6, wherein the power control unit receives instructions from an external source for determining the power level mode.

8. (Previously Presented) The DC voltage generator system according to Claim 5, wherein each respective control signal is generated by a clock control unit.

9. (Currently Amended) The DC voltage generator system according to Claim 5, wherein each respective control signal is generated in accordance with an activity level of the SOC

chip integrated circuit.

10. (Previously Presented) The DC voltage generator system according to Claim 9, wherein the activity level is one of a switching activity level and an I/O activity level.

11. (Previously Presented) The DC voltage generator system according to Claim 8, wherein the respective control signal controlling one of the local DC voltage generators is provided to the unit associated with the local DC voltage generator.

12. (Original) The voltage generator system according to Claim 5, wherein each respective control signal controls current flow in the local DC voltage generator.

13. (Currently Amended) A method for supplying voltage to a plurality of subsystems on an integrated circuit having a system on a chip (SOC) design, each of the subsystems having a plurality of units, at least two of the units located in at least one of the subsystems being different from each other, the method comprising the steps of:

distributing a plurality of local DC voltage generators throughout the integrated circuit;

supplying a clock control signal to each of the local DC voltage generators and generating a reference voltage based on at least the clock control signal;

generating, in a section of each local DC voltage generator, a pump control signal based on the reference voltage;

receiving, with a pump system of each local DC voltage generator, the pump control signal;

generating, using the pump system, a DC voltage based on the pump control signal; and
supplying the generated DC voltage to the plurality of units of said plurality of
subsystems.

14. (Original) The method of Claim 13, further comprising the step of independently
controlling each local DC voltage generator of the plurality of DC voltage generators.

15. (Original) The method of Claim 13, further comprising the step of independently
selecting a voltage level to be supplied by each local DC voltage generator.

16. (Previously Presented) The method of Claim 14, wherein the step of independently
controlling includes controlling each local DC voltage generator in accordance with a power
mode of the integrated circuit.

17. (Previously Presented) The method of Claim 14, wherein the step of independently
controlling includes controlling each local DC voltage generator in accordance with a clock
control signal.

18. (Original) The method of Claim 17, wherein the clock control signal is further
provided to selected units of the plurality of units.

19. (Previously Presented) The method of Claim 14, wherein the step of independently
controlling includes controlling each local DC voltage generator in accordance with an activity

level of the integrated circuit.

20. (Previously Presented) The method of Claim 19, wherein activity level is one of a switching level and an I/O level of the integrated circuit.

21. (Previously Presented) The method of Claim 13, wherein the pump control signal is based on the clock control signal to accommodate different system operating modes selected from one of high performance mode and low-power mode.